

8536-29

11/14/2013

1/16



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, DC 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

Mardel Rose Belotinsky  
Soil Chemicals Corporation, dba Cardinal Professional Products  
P.O. Box 782  
Hollister, CA 95024-0782

**NOV 14 2013**

Product Name: Methyl Bromide Quarantine Fumigant  
EPA Reg. No.: 8536-29  
Subject: Application for Notification dated 9/27/2013  
EPA Decision Number: 484408

Dear Ms. Belotinsky,

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action(s) requested fall within the scope of PRN 98-10.

The Agency acknowledges the deletion of "and some bacteria (e.g. Salmonella spp.)."

The label submitted with the application has been stamped "Notification" and will be placed in our records. If you have questions concerning this letter, please contact Erin Malone at 703-347-0253 or by email at [malone.erin@epa.gov](mailto:malone.erin@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Hope Johnson", is written over a pre-printed name.

Hope Johnson  
Product Manager 21  
Fungicide Branch  
Registration Division (7504P)



United States  
Environmental Protection Agency  
Washington, DC 20460

10/28

☐ Registration  
☐ Amendment  
☒ Other

OPP Identifier Number

## Application for Pesticide - Section I

1. Company/Product Number 8536-29	2. EPA Product Manager Hope Johnson	3. Proposed Classification <input type="checkbox"/> None <input checked="" type="checkbox"/> Restricted
4. Company/Product (Name) Methyl Bromide Quarantine Fumigant	PM# 21	
5. Name and Address of Applicant (Include ZIP Code) Soil Chemicals Corporation, dba Cardinal Professional Products P. O. Box 782, Hollister, CA 95024-0782 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

## Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

## Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification of deletion of pest per PR Notice 98-10.

This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

## Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container
Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container		5. Location of Label Directions <input type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			<input type="checkbox"/> Other _____		

## Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Mardel Rose Belotinsky	Title Registration Manager	Telephone No. (Include Area Code) (831) 697-0195
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received  (Stamped)
2. Signature 	3. Title Registration Manager	
4. Typed Name Mardel Rose Belotinsky	5. Date September 27, 2013	



**CARDINAL**  
**PROFESSIONAL PRODUCTS**  
www.cardinalproproducts.com

3/16

12 November 2013

Ms. Erin Malone  
Risk Manager  
EPA/OCSP/OPP/RD/FB  
Via e-mail: Malone, Erin [Erin@epa.gov](mailto:Erin@epa.gov)

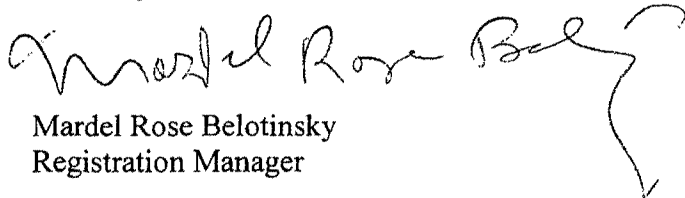
Dear Ms. Malone,

This letter is to clarify the notification that I mailed to the Agency on September 27, 2013.

Per the request of Ms. Jaclyn Pyne, of the Antimicrobials Division, Regulatory Management Branch II, we voluntarily removed the following text from the label, to avoid having to submit supporting data for an antimicrobial claim: "and some bacteria (e.g., Salmonella spp.)."

This text is found in Table III, page 12, of the specimen labeling submitted.

Sincerely,



Mardel Rose Belotinsky  
Registration Manager

4/16

**RESTRICTED USE PESTICIDE  
DUE TO ACUTE TOXICITY**

For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

**DIRECTIONS FOR USE OF THE PRODUCT**

**Methyl Bromide Quarantine Fumigant**

ACTIVE INGREDIENT: Methyl Bromide.....100%  
TOTAL: .....100%

*This product weighs 13.99 lbs./gal. at 68° F.*

**NOTIFICATION**  
NOV 14 2013  
NOV 14 2013

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**



**PELIGRO**

**POISON**

**PELIGRO:** Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

**IN ALL CASES OF OVEREXPOSURE, GET MEDICAL ATTENTION IMMEDIATELY.  
TAKE PERSON TO A DOCTOR OR TO AN EMERGENCY TREATMENT FACILITY.**

**FIRST AID**

**IF INHALED:**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.

**IF ON SKIN OR CLOTHING:**

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

**IF IN EYES:**

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

*Note: Have the product container or label with you when calling a poison control center or doctor, or going for treatment.*

**NOTE TO PHYSICIAN**

Early symptoms of overexposure to methyl bromide are dizziness, headache, nausea and vomiting, weakness, and collapse. Lung edema may develop in 2 to 48 hours after exposure, accompanied by cardiac irregularities; these effects are the usual cause of death. Repeated overexposure can result in blurred vision, staggering gait, and mental imbalance, with probable recovery after a period of no exposure. Blood bromide levels suggest the occurrence, but not the degree, of exposure. Treatment is symptomatic.

*See inside booklet for additional precautionary statements.*

**CARDINAL PROFESSIONAL PRODUCTS**

P. O. Box 782  
Hollister • CA 95024

**EMERGENCY PHONE NUMBER**

Infotrac: 1-800-535-5053

EPA Reg. No. 8536-29  
Specimen Labeling  
September 25, 2013  
p. 1



**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS  
AND DOMESTIC ANIMALS:**

**DANGER**

EXTREMELY HAZARDOUS LIQUID AND VAPOR UNDER PRESSURE. INHALATION MAY BE FATAL OR CAUSE SERIOUS ACUTE ILLNESS OR DELAYED LUNG OR NERVOUS SYSTEM INJURY. DO NOT BREATHE VAPORS. LIQUID OR EXCESSIVE VAPOR CAN CAUSE SERIOUS SKIN OR EYE INJURY WHICH MAY HAVE A DELAYED ONSET. DO NOT GET LIQUID ON SKIN, IN EYES, OR ON CLOTHING. METHYL BROMIDE VAPOR IS ODORLESS AND NON-IRRITATING TO SKIN AND EYES DURING EXPOSURE. EXPOSURE TO TOXIC LEVELS MAY OCCUR WITHOUT WARNING OR DETECTION BY THE USER.

**AIR CONCENTRATION LEVEL**

The acceptable air concentration level for persons exposed to methyl bromide is 5 ppm (20 mg/m<sup>3</sup>). The air concentration level is measured by a direct reading detection device, such as a Dräger tube/pump.

**PERSONAL PROTECTIVE EQUIPMENT**

Applicators and other handlers must wear:

- Loose-fitting or well ventilated long-sleeved shirt and long pants or equivalent, e.g., a one-piece garment.
- Shoes and socks
- Full-face shield or safety glasses with brow and temple shields when handling liquid product (Do NOT wear goggles.)
- When the air concentration level of methyl bromide is above 5 ppm and a respirator is required, protect the eyes by wearing a full-face respirator.
- No respirator is required if the air concentration level of methyl bromide in the working area is measured to be 5 ppm or less.
- A respirator is required if the air concentration level of 5 ppm for methyl bromide is exceeded at any time. The respirator must be one of the following types: (a) a supplied-air respirator (MSHA/NIOSH approval number prefix TC-19C) OR (b) a self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number prefix TC-13F).

**WORK SAFETY REQUIREMENTS**

- Do not wear jewelry, gloves, goggles, tight clothing, rubber protective clothing, or rubber boots when handling. Methyl bromide is heavier than air and can be trapped inside clothing and cause skin injury.
- If liquid fumigant splashes or spills on clothing, remove them at once, as fumes will be an intolerable source of irritation.
- Immediately after contamination, remove outer clothing, shoes and socks, and do not reuse until thoroughly aerated or ventilated. Keep such clothing and shoes outdoors until thoroughly aerated. Then follow the PPE manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE and work clothing separately from other laundry.
- Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.
- Follow PPE manufacturer's instructions for cleaning/maintaining protective eyewear and respirators.

**USER SAFETY RECOMMENDATIONS**

**Users should:**

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets on clothing. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

**OBSERVE THE FOLLOWING PRECAUTIONS  
GENERAL PRECAUTIONS**

1. Do not get in eyes, on skin or on clothing.
2. Do not spill or discharge contents outside of areas confined for treatment.
3. Comply with all local regulations and ordinances.
4. It is advisable to supply your physician with information on Methyl Bromide. Literature is available from your dealer or distributor.
5. Obtain medical assistance at once in case of illness after exposure, and do not allow conditions which could accidentally cause further exposure until recovery complete. (See Note to Physician.)

**PRECAUTIONS FOR COMMODITY USE**

**General Precautions:**

- When used for fumigation of enclosed spaces (such as warehouses; vaults; chambers; trucks, vans, boxcars, ships and other transport vehicles; and tarpaulin-covered areas), two persons trained in the use of this product must be present during introduction of the fumigant, initiation of aeration, and after aeration when testing for reentry. Two persons do not need to be present if monitoring is conducted remotely (outside the area being fumigated).
- Do not fumigate with this product when the temperature is below 40°F.
- Whenever possible, apply methyl bromide from outside of structure or car being fumigated. Make sure the fumigation area is properly sealed and posted. Do not move trucks, trailers, or vans during fumigation. They must be completely aerated before movement is allowed.

**Aeration and Reentry:**

- After fumigation, fumigated areas must be aerated until the air concentration level of methyl bromide is measured to be 5 ppm or less.
- Until the acceptable air concentration level is reached, do not allow any person to enter into the fumigated area unless he/she is wearing the personal protective equipment (including prescribed respirator) specified in the Hazards to Humans section of this labeling.

## **Spill and Leak Procedures for Enclosed Space Fumigation:**

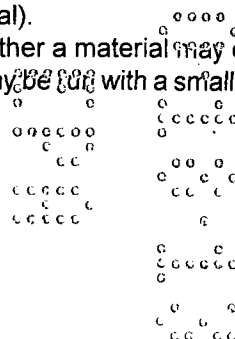
- Evacuate everyone from the immediate area of the spill or leak.
- For entry into affected area to correct problem, wear the personal protective equipment (including prescribed respirators) specified in the Hazards to Humans section of this labeling.
- Move leaking or damaged containers outdoors or to an isolated location.
- Observe strict safety precautions.
- Work upwind, if possible.
- Allow spilled fumigant to evaporate.
- Only correctly trained and PPE-equipped handlers are permitted to perform such cleanup. Do not permit entry into the spill or leak area by any other person until the air concentration level of methyl bromide is measured to be 5 ppm or less.
- Contaminated soil, water, and other cleanup debris is a toxic hazardous waste. Report spill to the National Response Center (800-424-8802) if the reportable quantity of 1000 lbs. is exceeded.

## **ENVIRONMENTAL HAZARD**

- This pesticide is toxic to wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.
- Monitor area immediately surrounding the fumigation site with a direct reading detection device, such as a Dräger tube/pump, during exposure and aeration periods to establish that dangerous levels of the fumigant are not present. The high volatility of the fumigant permits it to be vented from space being fumigated and to dissipate rapidly with no hazard to surrounding areas with correct monitoring.

## **CHEMICAL HAZARD**

- Methyl bromide is practically nonflammable. There is no danger from fire or explosion in use concentrations. However, flame can change the chemical to produce some corrosive damage to items in the space being fumigated. Pilot lights and glowing wire heaters should be turned off.
- Do not apply gas directly to metal surfaces because of possible corrosive effect on certain metals. Do not use containers or application equipment made of magnesium, aluminum, or their alloys.
- The following materials can develop an undesirable odor when encountered in fumigated areas and should be removed from the space being fumigated:
  - ☐ Foodstuffs: (a) Iodized salt; (b) Full-fat soya flour, (c) Any kinds of materials that contain reactive sulfur compounds, such as some soap powders, some baking sodas, and some salt blocks used for cattle licks.
  - ☐ Certain rubber goods: (a) sponge rubber; (b) Foam rubber, as in rug padding, pillows, cushions, and mattresses; (c) Rubber stamps and other similar forms of reclaimed rubber.
  - ☐ Furs, horsehair, and pillows (especially feather pillows).
  - ☐ Leather goods (particularly white kid or any other leather goods tanned with sulfur processes).
  - ☐ Woolens (extreme caution should be used in the fumigation of any angora woolens, and some adverse effect has been noted on the fumigation of woolen suits, coats, blankets, hand-knit woolen socks, sweaters, shawls, and woolen yarn).
  - ☐ Viscose rayons (those rayons processed or manufactured by a process in which carbon bisulfide is used).
  - ☐ Paper: (a) Silver-polishing papers; (b) Certain writing papers cured by sulphide processes; (c) Carbonless paper or blue-prints.
  - ☐ Photographic chemicals as used in photo processing darkrooms (does not include camera film).
  - ☐ Cinder blocks, or mixed concrete, which occasionally picks up odors.
  - ☐ Any materials that may contain reactive sulfur compounds.
- **THESE PRODUCTS MAY HINDER EFFECTIVENESS OF THE FUMIGANT:** Charcoal materials (charcoal absorbs the methyl bromide, reducing the effective concentration and contaminating the charcoal).
- If there is a question whether a material may develop an odor, a test fumigation may be run with a small quantity of the material.



## DIRECTIONS FOR USE

*It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.*

- THIS PRODUCT IS TO BE USED for control of pests in stored or residual food products, agricultural commodities and other materials and products as specified on this label. This product is to be used for these purposes ONLY IN: (a) enclosed spaces and structures that are intended or used for processing, transportation, handling, or storage of food products, agricultural commodities or other materials and products identified on this label; (b) enclosed spaces and structures in which food products, agricultural commodities, or other materials and products identified on this label have been processed, transported, handled or stored; and, when this product is used for the foregoing purposes, (c) associated storage areas, work areas and food service facilities (such as employee cafeterias and test kitchens). **DO NOT USE THIS PRODUCT IN** residential structures or in food service facilities (such as public restaurants) other than those described above, or for any other purposes other than those described above.
- This is a limited use label for quarantine/regulatory purposes and is to be used by or under the supervision of a State or Federal agency. Tables 1 through IV present a summary of treatments for raw agricultural commodities, processed commodities, and non-food and/or non-feed commodities abbreviated from the USDA/APHIS Plant Protection and Quarantine Treatment Manual. For more detailed guidance and information on treatment conditions, dosage rates, treatment periods, monitoring requirements, etc., refer to that Manual. Additional requirements may be imposed by the USDA/APHIS Manual, official government correspondence or documents, or the supervising regulatory agent at the fumigation.
- Nursery stock and plant materials are generally intolerant of excessive exposure to this product and damage may occur. The condition of the material at the time of treatment will determine its reaction to treatment. Some of the factors that must be fully considered prior to fumigation of nursery stock and plant materials are the method of packing, degree of root exposure, ventilation, temperature, delays in transit, and broken dormancy.

## PLACARDING OF FUMIGATED AREAS

The applicator (or supervisor of the application) must placard all entrances to the fumigated area with signs bearing:

- skull and crossbones symbol
- "DANGER/PELIGRO"
- "Area under fumigation, DO NOT ENTER/NO ENTRE"
- "Methyl Bromide Fumigant in use"
- the date and time of fumigation, and
- name, address, and telephone number of the applicator
- Boxcars must be placarded with D.O.T. specified warning signs.

Do not allow entry by unprotected persons into the fumigated area until the signs are removed. Such signs must only be removed when the air concentration level of methyl bromide is measured to be 5 ppm or less. Signs must remain legible during the entire posting period. Warning signs are available from your dealer or distributor.

## STORAGE AND DISPOSAL

### DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL.

**STORAGE AND HANDLING:** Store in a dry, cool, well-ventilated area under lock and key. Post as a pesticide storage area. Persons moving, handling, or opening containers must wear the personal protective equipment (including prescribed respirators when necessary) specified in the Hazards to Humans section of this labeling. Open container only in a well-ventilated area. Store cylinders upright, secured to a rack or wall to prevent tipping. Cylinders should not be subjected to rough handling or mechanical shock such as dropping, bumping, dragging, or sliding. Do not use rope slings, hooks, tongs or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use. When cylinder is empty, close valve, screw safety cap onto valve outlet, and replace protection bonnet before returning to shipper. Only the registrant is authorized to refill cylinders. Do not use cylinders for any other purpose.

**RETURN CYLINDERS TO:** Cardinal Professional Products, 8770 Highway 25, Hollister, CA 95023. Cylinders are the property of Cardinal Professional Products and should be returned promptly by collect auto freight. Do not ship cylinders without safety caps or valve protection bonnets. When a cylinder is partially full and there is no further requirement for the product, contact the company for return instructions.

**SHIPPING:** This fumigant is classified in the U.S. Department of Transportation Hazardous Materials Regulations as Methyl Bromide, 2.3, UN 1062, Poison-Inhalation Hazard, Hazard Zone C and no exemptions from specifications, packaging, marking, or labeling are allowed. Describe empty cylinders as having last contained Methyl Bromide (inhalation hazard). Do not ship with foods, feeds, or clothing.

**DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

## GENERAL INFORMATION AND INSTRUCTIONS

THIS FUMIGANT IS A HIGHLY HAZARDOUS MATERIAL AND SHOULD BE USED ONLY BY INDIVIDUALS TRAINED IN ITS PROPER USE. BEFORE USING, READ AND FOLLOW ALL LABEL PRECAUTIONS AND DIRECTIONS. ALL PERSONS WORKING WITH THIS FUMIGANT MUST BE KNOWLEDGEABLE ABOUT THE HAZARDS, AND TRAINED IN THE USE OF REQUIRED RESPIRATOR EQUIPMENT AND DETECTOR DEVICES, EMERGENCY PROCEDURES, AND PROPER USE OF THE FUMIGANT.

### COMMODITY, FOOD AND FEED FUMIGATION

#### The Following Precautionary Procedures Must Be Followed For All Uses:

(1) When used for fumigation of enclosed spaces (e.g., warehouses; grain bins or elevators; vaults; chambers; trucks, vans, railroad cars, ships and other transport vehicles; and tarpaulin-covered commodities), two persons trained in the use of this product must be present during introduction of the fumigant, initiation of aeration, and after aeration when testing for reentry. Two persons do not need to be present if application, aeration, monitoring and/or testing is conducted remotely (outside the area being fumigated). (2) Do not fumigate with this product when the space, commodity, or structure (excluding dwellings) to be fumigated is below 40°F for control of insects or below 20°F for control of rodents and other warm-blooded pests. Fumigation at different temperatures may be allowed or required under APHIS or other governmental quarantine treatment schedules. (3) If monitoring indicates concentration of fumigant is insufficient to be effective for the target pest, additional fumigant may be added as required, but concentration is not to exceed prescribed rates of application. (4) When fumigating tanks, silos, etc., of stored bulk flour, empty or draw down flour to less than one meter deep. Do not introduce liquid methyl bromide into flour storages. Set up fans or air circulation to avoid localized high concentrations of methyl bromide when shooting gaseous methyl bromide into the storage. Do not overdose flour storages. It is recommended that the fumigant be applied outside flour storages that are inside buildings and allowed to drift in through open hatches.

#### **A. Chamber and Vault Fumigation.**

- All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION directions must be followed.
- Load the chamber with the material to be fumigated, close exhaust ports, turn on circulating fan and close chamber door. Determine the proper rate of application and exposure time from appropriate table. Introduce the fumigant into the chamber by releasing it into the air stream in front of a blower or fan, passing it through a vaporizer, or allowing it to evaporate from a shallow pan. All controls should be outside the chamber.
- At the end of the exposure period, aerate by opening the exhaust port, turning on the exhaust fan and opening the chamber door slightly or an inlet port to permit fresh air to enter. At the end of the aeration period, check fumigant concentration with a detection device. See Aeration and Reentry Section.

#### **B. Vacuum Chamber Fumigation.**

- All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION directions must be followed.
- Place articles to be fumigated in the steel chamber and draw the vacuum (25-27 inches mercury). Release fumigant into the chamber (usually through an appropriate heating unit to insure complete non-destructive vaporization of methyl bromide). See appropriate table for rates of application and exposure times.
- At the end of the exposure time, release the vacuum and change the air in the chamber at least two times. A vacuum of 15 inches mercury should be drawn for this purpose. After purging chamber, check fumigant concentration with a detection device. See Aeration and Reentry Section.

#### **C. Railroad Car, Truck, Van, Trailer or Air/Sea Container Fumigation.**

- All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION directions must be followed.
- Railroad car should be placed on seldom used trackage or siding so that it will not have to be moved while under fumigation.
- Park vehicle or container out of traffic area—if possible, on the lee side of a building to protect from winds. Do not fumigate while strong winds are blowing.
- Seal the doors, ventilators and other openings. If vehicle or container can not be adequately sealed, cover with tarpaulin or plastic sheeting. See Tarpaulin Fumigation Section.
- The end(s) of the shooting line(s) should be anchored inside an evaporation pan unless a volatilizer is used to apply gaseous fumigant. Use a fan or blower to aid in even distribution of the fumigant. Always apply fumigant from outside the vehicle.
- Place warning signs on doors and as needed to be easily visible.
- Secure or lock vehicle or container to ensure it is not moved before aeration. DO NOT FUMIGATE VEHICLES IN TRANSIT. Do not move trucks, vans, or trailers on roadways during fumigation. They must be completely aerated before movement is allowed. After the appropriate exposure period, open the unit and aerate at least one hour. The vehicle must be aerated to 5 ppm or less before movement is allowed. The vehicle may then be resealed for shipment. Transfer of containerized commodities under fumigation onto and off of ships is permissible.
- Consult appropriate table for specific articles, rates of application and exposure times.
- See Aeration and Reentry Section.



#### **D. Tarpaulin Fumigation.**

- All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION directions must be followed.
- The article or stacked articles should be placed on a concrete floor or other air-tight surface. If the floor or surface is not air-tight, it may be made so by sealing or covering it with additional tarpaulin or polyethylene sheeting. Provide a space on top of the stack for a gas expansion dome to facilitate distribution.
- Evaporating pans are essential for the volatilization and uniform dispersion of fumigant except where a vaporizer is used. Shallow pans or basins made of plastic or metal (except aluminum) are satisfactory for this purpose. Use one evaporator pan for each 1000 cubic feet contained under the tarp.
- For delivery from outside the tarpaulin, do not use polyvinyl tubing; polyethylene tubing is recommended. Anchor one end of each tube into an evaporating pan with tape or a suitable weight. This ensures that the liquid will be directed into the evaporating pan. Place evaporating pan(s) with anchored applicator tubing in the center of the expansion dome. Extend the free ends of the polyethylene tubes outside the area to be covered.
- Cover and seal the stack with a gas tight tarpaulin or polyethylene sheeting of 4 mil or greater thickness. Allow a margin of at least two feet at the base of the stack for sealing. Sweep around the stack to provide a clean surface for sealing the tarpaulin. Seal tarpaulin to floor by sand and/or water snakes, by taping or by means of moist soil or sand.
- Attach each polyethylene tube to a can applicator or cylinder valve outlet and release fumigant. Use a cylinder dispenser or scale to meter small amounts from cylinders. Special units are available for use of 1 and 1.5 pound cans that combine opener and evaporating pan functions, and are designed to be used with all parts under the tarpaulin.
- Fans normally should be used in tarp fumigations to aid in the even distribution of fumigant. A vaporizer or heat exchanger may be required and is also useful to aid in application and distribution of the fumigant. Dosage rates and exposure times are shown in Table I through IV. At the end of the exposure period, unseal opposite ends of the tarpaulin and allow to aerate for at least one hour before completely removing the tarp. Check fumigant concentration with a detection device before allowing unprotected persons to enter the area. See Aeration and Reentry Section.

#### **E. Warehouse, Grain Elevator, Food Processing Plant, and Other Structures Containing Commodities.**

- All precautionary procedures outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION directions must be followed.
- Check with appropriate municipal and county authorities before fumigating to be completely familiar with local regulations. Ordinances may require watchmen or locks, during fumigation and/or notification of the nearest fire station.

##### **1. Preparation for Fumigation.**

- Remove or protect the following items from the structure to be fumigated: 1) all food and feed commodities not included in Tables I or II; 2) medicinals not sealed in metal or glass; 3) pets (including fish and birds); 4) furs, horsehair articles, and leather goods sensitive to methyl bromide; 5) rubber goods (natural latex); 6) carbonless carbon forms and blueprints; 7)

cinder blocks; 8) articles containing sulfur, 9) live cultures.

- Prior to fumigation, extinguish all open flames and turn off all high temperature electrical equipment, including laboratory ovens, pilot lights, gas refrigerators, oil burners, etc. This product in the presence of intense heat from such sources may generate some hydrobromic acid which may be injurious to commodities and equipment.

##### **2. Sealing the Building.**

- The most important part of the fumigation is the preparation and sealing of the structure. A thorough sealing job is necessary. Avoid fumigating under windy conditions. Sealing of the building begins with the closing of all external openings to the building. Wrap roof ventilators, chimneys and other large openings with a tarpaulin or plastic sheet and seal with duct or other appropriate tape. Screened and small openings may also be sealed with a wide, commercial duct or masking tape. Cleaning of the surfaces to be taped and the use of commercial spray-on adhesives will improve sealing.
- For masonry or metal structures, seal all cracks and other air leaks with caulking material or tape, and seal cracks around doors, windows, vents and other openings. Wooden structures and others that can not be readily sealed may be completely enveloped with an impervious tarpaulin. Seal securely all seams between tarps and seal the lower edges of the tarp to the ground with moist soil or with sand or water snakes. To prevent escape of gas through the ground and avoid injury to nearby plants, wet the soil to a depth of six inches for a distance of one foot outward from the edge of the tarp.
- Exterior doors and windows should be tightly sealed and locked. Large exterior doors may require additional efforts to seal properly. Check for cracks around the eaves, in the floor and roof, and seal them.
- Special care should be taken to seal off adjacent storage or work areas of treatment sites that are not to be fumigated. Adjoining structures sharing a common wall should be cleared of occupants before fumigation. If this is not feasible, spread a glossy-type building paper along the adjoining wall to prevent spread of the fumigant into undesired areas. Sisal Kraft paper, asphalt-laminated paper, heavily oiled Kraft or wrapping paper and plastic film are appropriate. In all such cases where the adjoining structure is occupied, it should be checked frequently with a suitable gas detector during fumigation to ensure the safety of the occupants. Check local regulations for specific requirements.
- Doors or hatches on milling machinery should be opened prior to fumigation. These include elevator boots, conveyor lids, settling chamber doors, dust trunks, and any other openings that will allow fumigant into the equipment. Inside doors, openings to attics and crawlspaces, cabinets, lockers, and drawers should also be opened to facilitate treatment and aeration. "Dead" spouts are particularly difficult to penetrate and should be opened before the fumigation.

- Set up fumigant application equipment and fans as necessary to achieve uniform fumigant concentrations and to facilitate thorough aeration after the exposure period. The choice of a fan or fans depends upon fan capability to perform the desired function without jeopardizing the success of the fumigation. Small battery-operated fans may be suitable in very small situations. A fan with tubing attached may be useful for internal recirculation of the fumigant within a building or space to aid in reaching and maintaining equalized concentrations. Adequate fans should also be available to effectively aerate difficult to ventilate situations because of construction of unexpected wind direction or calm. It may be possible to use heating system fans or other installations already in a building for improved circulation or distribution of product, as well as aid in ventilation after the exposure period. All fans used for the fumigation should be running when fumigant is being introduced and left running until uniform distribution has been accomplished. Fumigators should not enter a space or building under fumigation to turn fans off or on. See appropriate table for rate of application and exposure times.

### 3. *Fumigating the Commodity—Inside Release.*

Cylinders should be placed by a team of two people, and the location of each cylinder in the building should be mapped. The cylinders should be arranged so that the fumigators can walk away from the released gas as they open each subsequent cylinder. It is recommended that polyethylene sheeting or something functionally similar be used underneath cylinders and at the point of release to prevent staining or damage to floor surfaces. Narrow cylinders should be secured to prevent tipping.

- Cylinders should be placed within a room for best distribution into all areas. Cylinders should be placed in a normal upright position and the shipping caps removed. Standpipes or curved pipes directed up and away from the cylinder can be attached. Polyethylene, nylon or similar tubing, possibly divided with toes or crosses, or other equipment can also be attached to facilitate distribution of the gas within the room or space to be fumigated.

- Place warning signs or placards on all entrances to the building. Signs and placards should conform to all local, state, and federal regulations. It is best to inform police, fire and health officials that a fumigation process is about to begin. Observe the location of the nearest outside telephone for use in case of an emergency.

- Practice or review the shooting procedure so that the operation will be done efficiently and safely. Respiratory protection equipment should be checked for leaks and other problems before the "practice session". While wearing respiratory protection, quickly open and close the cylinder valves to make certain they are in working order and thus avoid delay during the actual release.

- Applicators should not be in the building longer than 30 minutes while releasing the gas. If it is impossible for one team to do it within this time period, additional experienced teams should be used. Two people should work together while the gas is being released and when entering the structure during aerating and testing.

- Fumigators should always remain in sight of each other from the time they open the first cylinder until the time they leave the building together. While the fumigant is being released, it is advisable to have additional people, with respiratory protection equipment ready, waiting outside to assist if necessary. One member of the team should record the release of the fumigant from each cylinder so that none are missed. After making sure fumigation area is vacated, immediately lock and seal the last exit.

- If guards are used, they should remain on duty during release, exposure, and aeration periods to prevent unauthorized entry.

### 4. *Fumigating the Commodity—Outside Release.*

- Releasing the fumigant from outside the space to be fumigated is possible in some situations and can minimize applicator exposure to the fumigant. Prepare the building as outlined previously.

- Secure the ends of each "shooting" line or hose to each point where the fumigant is to be released, using evaporating pans or plastic sheeting to prevent possible damage to some surfaces. Run each line to the cylinder(s) or manifold located outside the area to be treated. Connect each line to the cylinder(s) or manifold.

- When fumigating storages of bulk grain or other bulk commodities, such as silos, grain bins, tanks, etc., the fumigator should plan sealing and fumigant distribution to effectively fumigate all the target pests contained in the sealed space. The fumigant can be applied in several locations such as the top and bottom of the storage. For bulk commodities more than 20 feet deep, a permanent or temporary fumigant recirculation system should be considered. When recirculating fumigant through a closed loop system, plan to run fans long enough to achieve at least three complete cycles.

- After making sure fumigation area is vacated, immediately lock and seal the last exit. If guards are used, they should remain on duty during release, exposure, and aeration periods to prevent unauthorized entry.

- Open the valves to release the fumigant. Respiratory equipment must be available in the event of a major leak or equipment failure.

### 5. *Aerating the Building.*

- When the exposure period is complete, aeration generally should be started by opening previously sealed doors and windows on the ground floor. Ventilators accessible from the outside should be opened at this time. Fans should be on to assist aeration. Aeration is usually complete in four hours depending upon weather conditions and cross ventilation. No one should be allowed inside the building without respiratory protection until the methyl bromide concentration is 5 ppm or less in the worker areas.

- Contact the police, fire and health officials previously notified of the fumigation and inform them that it has been completed.

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**F. Shipboard, In Transit Ship or Shiphold Fumigation.**

- **IMPORTANT.** Shipboard, in transit ship or shiphold fumigation is also governed by the U.S. Coast Guard Regulations. Refer to and comply with those regulations prior to fumigation.
- Prior to fumigating a vessel for in transit cargo fumigation, the master of the vessel or his representative and the fumigator must determine whether the vessel is suitably designed and configured so as to allow for safe occupancy by the ship's crew throughout the duration of the fumigation. If it is determined that the design and configuration of the vessel does not allow for safe occupancy by the ship's crew throughout the duration of the fumigation, then the vessel must not be fumigated unless all crew members are removed from the vessel. The crew members must not be allowed to reoccupy the vessel until the vessel has been properly aerated and a determination has been made by the master of the vessel and the fumigator that the vessel is safe for occupancy (5 ppm or below).
- The person responsible for the fumigation must notify the master of the vessel or his representative of the requirements: 1) relating to the use of respiratory protection equipment; 2) relating to the use of detection equipment; and 3) that a person qualified in the use of this equipment must accompany the vessel with cargo under fumigation. Emergency procedures, cargo ventilation, periodic monitoring and inspections, and first aid measures must be discussed with and understood by the master of the vessel or his representative.
- During fumigation, or until a manned vessel leaves port or the cargo is aerated, the person in charge of the fumigation shall ensure that a qualified person using gas detection equipment tests spaces for fumigant leakage. If leakage of the fumigant is detected, the person in charge of the fumigation shall take action to correct the leakage, or inform the master of the vessel, or his representative, of the leakage so that corrective action can be taken.
- Using appropriate gas detection equipment, monitor spaces adjacent to areas containing fumigated cargo and all regularly occupied areas for fumigant leakage. If leakage above 5 ppm is detected, the area should be evacuated of all personnel, ventilated, and action taken to correct the leakage, before allowing the area to be reoccupied. Do not enter fumigated areas except under emergency conditions. If necessary to enter a fumigated area, wear a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied/SCBA respirator (personal protection equipment). Never enter fumigated area alone. At least one other person, wearing personal protection equipment, should be available to assist in case of an emergency.
- If necessary to enter holds prior to discharge, test spaces directly above cargo surface for fumigant concentration, using an appropriate gas detector, and while wearing personal protection equipment. Do not enter without respiratory protection, unless fumigation concentrations are at or below 5 ppm, as indicated by a suitable detector.
- If the fumigation is not completed and the vessel aerated before the manned vessel leaves port, the person in charge of the vessel shall ensure that there be on board the vessel during the voyage: 1) at least two NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied/SCBA respirators; 2) one gas detection device; and 3) a person qualified in their operation.

- Fumigation of any ship, shiphold, or a portion of the vessel (e.g., galley) requires careful planning. All precautionary procedures as outlined previously must be followed. Aeration should be planned so that it can be safely and effectively conducted. Adequate supplemental fans to ventilate quarters, decks, bottom of shipholds, etc., should be available for use. Tubing attached to fans or used as a temporary exhaust stack for aeration should also be prepared in advance. Recirculation system for fumigation of grain and other commodities in shipholds must be installed before loading.
- The master of the vessel or his representative and the fumigator should discuss security of an unoccupied vessel under fumigation and make arrangements to prevent unauthorized boarding. If a crew member will need to board such a vessel for a necessary ship function (e.g., boiler check) the crew member must be trained in the proper use of respiratory protection equipment. The fumigator should test all passageways and areas where the crew member will be entering to determine if fumigant concentrations exceed 5 ppm in the air. If concentrations exceed 5 ppm, then required respiratory equipment must be worn. See appropriate table for rates of application and exposure times.

# METHYL BROMIDE QUARANTINE FUMIGANT

**TABLE I**  
**APPLICATION SUMMARY--STORED RAW AGRICULTURAL COMMODITIES<sup>(1)</sup> (NOT PROCESSED FOOD)**

COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Tree nuts and peanuts (e.g. almonds, Brazil nuts, bushnuts, butternuts, cashews, filberts, hickory nuts, macadamia nuts, pecans, pistachios, walnuts, etc.)	Confused flour beetle, saw toothed grain beetle, dermestids, Indian meal moth, drugstore beetle, cigarette beetle, warehouse moth, rusty grain beetle, cadelle, groundnut bruchid, pecan weevil, almond moth, nut weevil, tortricid moths	200 200	1.5 - 3.5 2.5 - 3.5 <sup>(a)</sup>	16 - 24 2 - 5 <sup>(a)</sup>
Chestnut		200 200	4 - 6 4 <sup>(a)</sup>	4 - 6 5 <sup>(a)</sup>
Apples	Oriental fruit moth, codling moth, apple maggot, apple curculio, twig borer, melon fruit fly, Mediterranean fruit fly, Oriental fruit fly, cherry fruit fly, brown mite, green peach aphid, scales, thrips	5	1.5 - 4	2
Apricots		20	1.5 - 4	2
Blueberries		20	1.5 - 2	2 - 3.5
Cherries		20	1.5 - 4	2
Nectarines		20	1.5 - 4	2
Peaches		20	1.5 - 4	2
Pears		5	1.5 - 4	2
Plums		20	1.5 - 4	2
Quinces		5	1.5 - 4	2
Strawberries		60	1.5 - 3	2
Prunes		20	1.5 - 4	2
Barley	Coffee bean weevil, Australian spider beetle, saw toothed and merchant grain beetles, dried fruit beetles, Indian meal moth, confused flour beetle, warehouse moth, common grain mite, granary weevil, lesser grain borer, rusty grain beetle, angoumois grain moth, rice weevil, cadelle, drugstore beetle, cigarette beetle, flat grain beetle, Mediterranean flour moth, red flour beetle, common bean weevil, copra beetle, rice moth, foreign grain beetle, almond moth, mealworms, bruchids, weevils, mite, khapra beetle, seed beetles	50	2 - 9	4 - 24
Corn		50	2 - 9	2 - 24
Oats		50	2 - 9	4 - 24
Popcorn		240 240	1.5 - 9 <sup>(a)</sup> 2 - 9	2 - 3 <sup>(a)</sup> 4 - 24
Rice		50	2 - 9	4 - 24
Rye		50	2 - 9	4 - 24
Sorghum (grain)		50	2 - 9	4 - 24
Dried peas and beans		50	3 - 4	4 - 24
Faba beans (dried)		50 50	3 - 4 3 <sup>(a)</sup>	4 - 24 5 <sup>(a)</sup>
Wheat		50	2 - 9	4 - 24
Copra		100	1.5 - 3.5	16 - 24
Cipolini Bulbs	<i>Exosoma lusitanica</i> , mites	50	2 - 4 <sup>(c)</sup>	2 - 4 <sup>(c)</sup>
Cocoa Beans	Cocoa moth, cigarette beetle, confused flour beetle, bruchids, warehouse moth, flat grain beetle, coffee bean weevil, coffee rust, Indian meal moth	50 50	2 1.5 <sup>(a)</sup>	16 - 24 3 <sup>(a)</sup>
Coffee Beans		75	2 - 3	16 - 24

(1) Consult APHIS Treatment Manual for additional treatment conditions and commodities.

(2) Tolerance of fruit to methyl bromide may vary with variety of fruit. Check with local authorities or Cardinal Professional Products for additional information.

(a) Vacuum chamber fumigation.

(b) Fumigation below 70°F may result in damage.

(c) Partial vacuum (15 inches mercury).

## METHYL BROMIDE QUARANTINE FUMIGANT

**TABLE I, continued**  
**APPLICATION SUMMARY--STORED RAW AGRICULTURAL COMMODITIES<sup>(1)</sup> (NOT PROCESSED FOOD)**

COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Asparagus	Aphids, asparagus beetle, armyworms, cabbage looper, European corn borer, pink bollworm, Japanese beetle, pod borers, Oriental fruit fly, Mediterranean fruit fly, corn earworm, green stink bug, sawbugs, spider mites, cabbage maggots, lygus bug, melon aphid, pickleworm, carrot rust fly, stink bug, bean leaf beetle, Mexican bean beetle, Diabrotica beetle, cucumber beetle, squash bug, false chinch bug, loopers, symphylans, blister beetles, onion maggot, onion thrips, mealybugs, pepper maggot, Colorado potato beetle, potato psyllid, tuber moth, sweet potato weevil, tuberworm, squash bug, squash vine borer, earwigs, darkling beetle, external feeding insects, internal feeding insects	100	1.5 - 4	2
Beans (all)		50	1 - 3	1.5 - 2
Beets (roots)		30	2 - 3	2 - 4
Cabbage		50	2 - 4	2
Carrots		30	2 - 3	4
Citron		30	3	2
Cucumbers		30	2 - 4	2 - 4
Eggplant		20	2 - 3	2 - 4
Jerusalem Artichokes		30	2 - 3	4
Melons (e.g., cantaloupe, honeydew melon, muskmelon, watermelon)		20	2 - 4	2
Okra		30	1 - 3.5	2
Onions		20	2 - 3	4
Parsnips (roots)		30	2 - 3	2 - 4
Peas (with pods)		50	1 - 3	1.5 - 2
Sweet corn		50	2 - 3	3 - 4
Peppers		30	2 - 4	2
Pimentos		30	2.5	3
Pineapples		20	2 - 6	2 - 6
Potatoes		75	2.5 - 3 <sup>(b)</sup>	2 <sup>(b)</sup>
Pumpkins		20	1.5 - 2.5	2
Radishes		30	2 - 3	2 - 4
Rutabagas		30	2.5 - 3	2
Squash (Summer)		30	1.5 - 4	2
Squash (Winter)		20	1.5 - 4	2
Squash (zucchini)		20	1.5 - 2.5	2
Sugar beets (roots)		30	2 - 3	2 - 4
Sweet potatoes		75	2 - 4 <sup>(b)</sup>	3 - 4.5 <sup>(b)</sup>
Tomatoes		20	2 - 3	3 - 4
Turnips (roots)		30	2 - 3	2 - 4
Yams		30	2.5 - 4 <sup>(b)</sup>	3 - 4.5 <sup>(b)</sup>

(1) Consult APHIS Treatment Manual for additional treatment conditions and commodities.

(2) Tolerance of fruit to methyl bromide may vary with variety of fruit. Check with local authorities or Cardinal Professional Products for additional information.

(a) Vacuum chamber fumigation.

(b) Fumigation below 70°F may result in damage.

(c) Partial vacuum (15 inches mercury).

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## METHYL BROMIDE QUARANTINE FUMIGANT

TABLE I, continued APPLICATION SUMMARY--STORED RAW AGRICULTURAL COMMODITIES <sup>(1)</sup> (NOT PROCESSED FOOD)				
COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Garlic	<i>Brachycera</i> spp., <i>Dyspessa ulula</i> , brown wheat mite, onion maggot, onion thrips	50	2 - 3 (c)	1.5 - 4 (c)
Horseradish (roots)	<i>Baris lepidi</i>	30	2 - 3 (c)	2 (c)
Salsify Roots	Armyworm, flea beetle, leafhoppers, stink bugs, tarnished plant bug	30	2 - 3	2 - 3
Hay (alfalfa)	Alfalfa weevil, cereal leaf beetle	50	2 - 3	16 - 24
Grapefruit <sup>(2)</sup>	<i>Anastrepha</i> spp., <i>Proeulia</i> spp., <i>Leptoglossus</i> spp., <i>Megalometis</i> spp., <i>Naupactus</i> spp., <i>Listroderes</i> spp., <i>Conoderus</i> spp., <i>Brevipalpus</i> spp., ants, aphids, citrus scale, citrus mites, leaf rollers, fruit flies, white flies, thrips, California orangedog, mealybugs, tortricid moths, vine moth, spiders	30	2 - 3	2
Grapes		20	1.5 - 4	2 - 4
Kumquat		30	2 - 3	2
Lemons <sup>(2)</sup>		30	1.5 - 3	2
Lime <sup>(2)</sup>		30	2 - 3	2
Oranges <sup>(2)</sup>		30	2 - 3	2
Tangelos <sup>(2)</sup>		30	2 - 3	2
Tangerines <sup>(2)</sup>		30	2 - 3	2
Baled Tobacco	Drugstore beetle, cigarette beetle, tobacco beetle, tobacco moth		2 - 3 4 (a)	48 - 72 4 (a)
Processed Tobacco (e.g. cigars)			2 - 3 4 (a)	16 - 24 4 (a)

(1) Consult APHIS Treatment Manual for additional treatment conditions and commodities.

(2) Tolerance of fruit to methyl bromide may vary with variety of fruit. Check with local authorities or Cardinal Professional Products for additional info.

(a) Vacuum chamber fumigation.

(b) Fumigation below 70°F may result in damage.

(c) Partial vacuum (15 inches mercury).

TABLE II APPLICATION SUMMARY--PROCESSED FOOD <sup>(1)</sup>				
COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Dried Fruits (e.g., apples, apricots, cherries, dates, peaches, prunes, raisins)	Saw-toothed grain beetle, merchant grain beetle, dried fruit beetle, Indian meal moth, confused flour beetle, spider beetles, cigarette beetle, warehouse moth, carob moth, raisin moth, mites, fruit flies	125	1 - 2	16 - 24
Figs (dried)		250	1 - 2	16 - 24
Cheese (e.g., Parmesan and Roquefort)	Cheese mites, cheese skipper, cheese maggot	325	1 - 2	16 - 24
Eggs (dried)	Larder beetle, mites	400	1 - 2	16 - 24
Hams and cured meats	Cheese skipper, larder beetle, red legged ham beetle, mites	325	1 - 2	16 - 24
Processed foods and processed grains	Saw-toothed grain beetle, flat grain beetle, flour beetles, cigarette beetle, Indian meal moth, psocids, rusty grain beetle, drugstore beetle, spider beetles, Mediterranean flour moth, mealworms, warehouse beetle, warehouse moth, mites, foreign grain beetle, <i>Khapra</i> beetle	125	1 - 12	12 - 48
Spices and herbs (dried)		400	2 - 3	16 - 24
Animal feed (e.g., pet food)		400	1 - 2	12 - 24

(1) Consult APHIS Treatment Manual for additional treatment conditions and commodities.

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## METHYL BROMIDE QUARANTINE FUMIGANT

TABLE III

APPLICATION SUMMARY--STRUCTURES OR VEHICLES CONTAINING RAW OR PROCESSED COMMODITIES<sup>(1)</sup>

TREATMENT SITES CONTAINING RAW OR PROCESSED COMMODITIES	PESTS CONTROLLED	RATE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Warehouses <sup>(2)</sup> , shipboards, railroad cars, trucks, air and sea containers, grain elevators, poultry houses, food processing plants, feed rooms, grain bins	Cockroaches, confused flour beetle, rice weevil, granary weevil, saw toothed grain beetle, rusty grain beetle, lesser grain borer, cadelle, Khapra beetle, drugstore beetle, larder beetle, carpet beetle, copra beetle, coffee bean weevil, groundnut bruchid, common bean weevil, dried fruit beetle, golden spider beetle, Australian spider beetle, cigarette beetle, angoumois grain moth, Mediterranean flour moth, warehouse moth, Indian meal moth, common grain mite, snails	1 - 9	10 - 72
	rats, mice and brown tree snakes ( <i>Boiga irregularis</i> )	0.2 - 0.4	8 - 16
	fungi and some bacteria (e.g., <i>Salmonella</i> spp.)	3 - 4	24 - 36

(1) At temperatures below 60°F, increase the dosage by 1/2 lb. per 1,000 cu.ft. for every 10°F drop in temperature, or use an approved procedure to heat the enclosure. No additional fumigant is required for rats and mice. Do not fumigate fungi and some bacteria when inside temperatures are less than 70°F.

(2) Seed in warehouses should not be fumigated at rates greater than 1 lb./1000 ft.<sup>3</sup>. Seed temperatures should not exceed 85°F, and moisture should not exceed 12%. Ambient temperature should not exceed 85°F, and relative humidity should not exceed 85%.

(3) Do not move trucks, vans, or trailers on roadways during fumigation. They must be completely aerated before movement is allowed. Transfer of containerized commodities under fumigation onto and off of ships is permissible.

**NOTE:** Remove or protect any food and feed commodities not listed in Table I or II before fumigating structures containing approved commodities. Also remove or protect any commodity with specific commodity exposure times less than the times listed in this table.

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## METHYL BROMIDE QUARANTINE FUMIGANT

**TABLE IV**  
**APPLICATION SUMMARY—NON-FOOD PRODUCTS<sup>(1)</sup>**

MATERIALS AND PRODUCTS	PESTS CONTROLLED	RATE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Cotton (i.e., lint, bulk, baled, seed)	Pink bollworm, boll weevil, Khapra beetle, Coleoptera, Lepidoptera	3 - 11	3 - 25
Plants, bulbs, corms, tubers, rhizomes and roots	Mealybugs, scale insects, aphids, Coleoptera, Japanese beetle, Hemiptera, thrips, ants, Homoptera, Lepidoptera, mites	1 - 4.5	1 - 4.5
Christmas trees	Gypsy moth, pine shoot borer, Homoptera, Hymenoptera, Coleoptera, Lepidoptera, insects	1.5 - 5 <sup>(a)</sup>	2.5 - 4.5 <sup>(a)</sup>
Propagative seeds	<i>Scolytus</i> spp., <i>Callosobruchus</i> spp., <i>Cryptophlebia illepidia</i> , <i>Helicella</i> spp., Coleoptera, Lepidoptera, mites	1 - 4	2 - 24
Machinery, packing and bagging material, miscellaneous non-food cargo (e.g., ceramic, marble, brassware, handicrafts, burlap, appliances)	Khapra beetle, woodboring insects, Coleoptera, mites, spiders, snails, brown tree snakes ( <i>Boiga irregularis</i> ), cockroaches, Lepidoptera	2 - 15	24 - 72
Soil and soil contaminated miscellaneous non-food cargo (e.g., farm and military equipment, machinery, construction equipment, bagging material, roots, etc.)	Nematodes, weed seeds, insects, spiders, brown tree snakes ( <i>Boiga irregularis</i> )	4 - 20	8 - 24
Vehicles and outdoor equipment, furnishings, materials	Gypsy moths, rodents, cockroaches	1.5 - 4.5	2.5 - 16
Logs and lumber	Oak wilt and other timber pathogens	12 - 15	48 - 72
Forest and plant products (e.g., lumber, firewood, driftwood, pallets, crates, paper, cardboard, carvings, grapevine wreaths, dried plants, Spanish moss, bamboo and wicker, mulch, etc.)	Khapra beetle, woodborers, bark beetles, termites, carpenter ants, hornails, old house borer, powder post beetles, Hymenoptera, Coleoptera, woodworm, wharf borer, wood wasps, mites, Lepidoptera, spiders, brown tree snakes ( <i>Boiga irregularis</i> )	3 - 9	16 - 24
Beehives and beekeeping equipment, beeboards	Greater wax moth, mites, insects, diseased and feral bees	1.5 - 2	16 - 24

(1) Consult APHIS Treatment Manual for additional treatment conditions and commodities.

(a) Damage possible. Reduce by cutting trees at least 2 weeks prior to fumigation.

### WARRANTY

Seller warrants that this product conforms to the chemical description on its label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. To the extent consistent with applicable law, the registrant assumes no responsibility for loss or damage due to required quarantine and trade fumigations using this product. Neither this warranty nor any other warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, express or implied, extends to the use of this product in a manner contrary to its label.

**NOTICE:** Contains methyl bromide, a substance which harms public health and environment by destroying ozone in the upper atmosphere.

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